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21872	7590	04/22/2009

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GREENBELT, MD 20771

EXAMINER	
DENG, ANNA CHEN	
ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 04/22/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,028	02/25/2004	Michael Gerard Hinchey	GSC 14, 389-1	7158

TITLE OF INVENTION: SYSTEM AND METHOD FOR DERIVING A PROCESS-BASED SPECIFICATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	07/22/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: <u>Mail</u> Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,028	02/25/2004	Michael Gerard Hinchey	GSC 14, 389-1	7158

TITLE OF INVENTION: SYSTEM AND METHOD FOR DERIVING A PROCESS-BASED SPECIFICATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	07/22/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DENG, ANNA CHEN	2191	717-106000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,028	02/25/2004	Michael Gerard Hinchey	GSC 14, 389-1	7158

21872 7590 04/22/2009	EXAMINER
NASA GODDARD SPACE FLIGHT CENTER	DENG, ANNA CHEN
8800 GREENBELT ROAD, MAIL CODE 140.1	ART UNIT / PAPER NUMBER
GREENBELT, MD 20771	2191

DATE MAILED: 04/22/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 552 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 552 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

	Application No.	**Applicant(s)**
Notice of Allowability	10/789,028	HINCHEY ET AL.
	Examiner	**Art Unit**
	ANNA DENG	2191

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *1/30/2009*.

2. ☒ The allowed claim(s) is/are *1,2,4-9 and 11-28*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

      a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

            1. ☐ Certified copies of the priority documents have been received.

            2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

            3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

      * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

DETAILED ACTION

1.   This action is in response to amendment filed on 1/30/2009.

2.   The rejection under 35 U.S.C. 102 (b) as being anticipated by Garland et al. (USPN 6,289,502 B1) to claims 1-4, 10-23, and 26-28 is withdrawn in view of applicant's amendment.

3.   The rejection under 35 U.S.C. 103 (a) as being unpatentable over Garland et al. (USPN 6,289,502 B1), in view of Bowman-Amuah (US 6,405,364 B1) to claims 5-9, and 24-25 is withdrawn in view of applicant's amendment.

4.   Claims 1, 4, 11, and 26-28 have been amended (see Examiner's Amendment below).

5.   Claims 3 and 10 have been canceled (see Examiner's Amendment below).

6.   Claims 1, 2, 4-9, and 11-28 are pending.

7.   Claims 1, 2, 4-9, and 11-28 are allowance.

EXAMINER'S AMENDMENT

8.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone

interview with Heather Goo (Reg. No. 37,336) on 4/9/2009 to place the

application in condition of allowance.

The application has been amended as follows:

In the Claims:

Claims 3 and 10 have been canceled.

Claims 1, 4, 11, and 26-27 have been replaced to:

1.   (Currently Amended) A method for deriving a process-based specification

for a system, comprising:

        deriving a trace-based specification from a non-empty set of traces by a

processor, wherein a trace is a sequence of actions expressed as strings

representing a history of an execution of a process; ~~and~~

        mathematically inferring the process-based specification from the trace-

based specification, wherein mathematically inferring includes applying ~~the~~ Laws

of Concurrency in reverse to a set of system traces to determine the process-

based specification, wherein the process-based specification is mathematically

equivalent to the trace-based specification, and whereby the Laws of

Concurrency are algebraic laws that (a) allow at least one process to be

manipulated and analyzed~~;~~, (b) permit formal reasoning about equivalences

between processes~~;~~, and (c) determine traces from the at least one process;

generating the process-based specification using an inference engine,
wherein the inference engine iteratively applies a set of rules to a set of data
representing a problem to determine a solution to the problem by logical
manipulation and analysis of the set of data; and

analyzing the process-based specification to examine possible
implementations of the process-based specification in different configurations,
whereby analyzing includes identifying at least one equivalent alternative
process-based specification and characterizing differences between the process-
based specification and the at least one alternative process-based specification,
wherein differences include number of processes, deterministic behavior, and
competition for resources.

4.   (Currently Amended) The method of claim 3̶1, wherein the Laws of
Concurrency are used by the inference engine to generate the process-based
specification.

11.   (Currently Amended) The method of claim 1̶0̶1, wherein the various
possible implementations of the process-based specification are based on
transformations of the process-based specification by applying the Law of
Concurrency to derive various implementations.

26.   (Currently Amended) a system adapted for deriving a process-based
specification, comprising:

at least one natural language scenario;

a computer-readable medium having instructions stored thereon for deriving a trace-based specification from the at least one natural language scenario; and

an inference engine ~~to~~ for mathematically infer~~ring~~ the process-based specification from the trace-based specification, wherein mathematically inferring includes applying ~~the~~ Laws of Concurrency in reverse to a set of system traces to determine the process-based specification, wherein the process- based specification is mathematically equivalent to the trace-based specification, and whereby the Laws of Concurrency are algebraic laws that (a) allow at least one process to be manipulated and analyzed~~;~~, (b) permit formal reasoning about equivalences between processes~~;~~, and (c) determine traces from the at least one process;

a generating engine for generating the process-based specification using an inference engine, wherein the inference engine iteratively applies a set of rules to a set of data representing a problem to determine a solution to the problem by logical manipulation and analysis of the set of data; and

an analyzing engine for analyzing the process-based specification to examine possible implementations of the process-based specification in different configurations, whereby analyzing includes identifying at least one equivalent alternative process-based specification and characterizing differences between the process-based specification and the at least one alternative process-based

specification, wherein differences include number of processes, deterministic

behavior, and competition for resources.

27.   (Currently Amended) A system adapted for deriving a process-based

specification, comprising:

  a non-empty set of traces;

  a computer-readable medium having instructions stored thereon for

deriving a trace-based specification from the set of traces, wherein a trace is a

sequence of actions expressed as strings representing a history of an execution

of a process; ~~and~~

  an inference engine ~~to~~ for mathematically infer~~ring~~ the process-based

specification from the trace-based specification, wherein mathematically inferring

includes applying ~~the~~ Laws of Concurrency in reverse to a set of system traces to

determine the process-based specification, wherein the process-based

specification is mathematically equivalent to the trace-based specification, and

whereby the Laws of Concurrency are algebraic laws that (a) allow at least one

process to be manipulated and analyzed~~;~~, (b) permit formal reasoning about

equivalences between processes~~;~~, and (c) determine traces from the at least one

process;

  a generating engine for generating the process-based specification using

an inference engine, wherein the inference engine iteratively applies a set of

rules to a set of data representing a problem to determine a solution to the

problem by logical manipulation and analysis of the set of data; and

an analyzing engine for analyzing the process-based specification to

examine possible implementations of the process-based specification in different

configurations, whereby analyzing includes identifying at least one equivalent

alternative process-based specification and characterizing differences between

the process-based specification and the at least one alternative process-based

specification, wherein differences include number of processes, deterministic

behavior, and competition for resources.

28.   (Currently Amended) A method for deriving a process-based specification

for a system, wherein the system performs actions, comprising:

receiving at least one natural language scenario describing the actions;

generating a trace-based specification from the at least one natural

language scenario by a processor; ~~and~~

mathematically inferring the process-based specification from the trace-

based specification, wherein mathematically inferring includes applying ~~the~~ Laws

of Concurrency in reverse to a set of system traces to determine the process-

based specification, wherein the process-based specification is mathematically

equivalent to the actions defined above, whereby the Laws of Concurrency are

algebraic laws that (a) allow at least one process to be manipulated and

analyzed;, (b) permit formal reasoning about equivalences between processes;,

and (c) determine traces from the at least one process;

generating the process-based specification using an inference engine,

wherein the inference engine iteratively applies a set of rules to a set of data

representing a problem to determine a solution to the problem by logical

manipulation and analysis of the set of data; and

    analyzing the process-based specification to examine possible

implementations of the process-based specification in different configurations,

whereby analyzing includes identifying at least one equivalent alternative

process-based specification and characterizing differences between the process-

based specification and the at least one alternative process-based specification,

wherein differences include number of processes, deterministic behavior, and

competition for resources.

REASONS FOR ALLOWANCE

9.   The following is an examiner's statement of reasons for allowance:

    The cited prior art taken alone or in combination fail to teach, in

combination with the other claimed limitations, mathematically inferring the

process-based specification from the trace-based specification, wherein

mathematically inferring includes applying Laws of Concurrency in reverse to a

set of system traces to determine the process-based specification, wherein the

process-based specification is mathematically equivalent to the trace-based

specification, and whereby the Laws of Concurrency are algebraic laws that (a)

allow at least one process to be manipulated and analyzed, (b) permit formal

reasoning about equivalences between processes, and (c) determine traces from

the at least one process; generating the process-based specification using an

inference engine, wherein the inference engine iteratively applies a set of rules to

a set of data representing a problem to determine a solution to the problem by

logical manipulation and analysis of the set of data; and analyzing the process-

based specification to examine possible implementations of the process-based

specification in different configurations, whereby analyzing includes identifying at

least one equivalent alternative process-based specification and characterizing

differences between the process-based specification and the at least one

alternative process-based specification, wherein differences include number of

processes, deterministic behavior, and competition for resources as recite in all

the independent claims 1, and 26-28.

The closes cited prior arts, the combination of Garland et al. (USPN

6,289,502 B1), and Bowman-Amuah (US 6,405,364 B1) teaches a method for

deriving a process-based specification for a system. However, the combination of

Garland and Bowman fails to teaches mathematically inferring the process-based

specification from the trace-based specification, wherein mathematically inferring

includes applying Laws of Concurrency in reverse to a set of system traces to

determine the process-based specification, wherein the process-based

specification is mathematically equivalent to the trace-based specification, and

whereby the Laws of Concurrency are algebraic laws that (a) allow at least one

process to be manipulated and analyzed, (b) permit formal reasoning about

equivalences between processes, and (c) determine traces from the at least one

process; generating the process-based specification using an inference engine,

wherein the inference engine iteratively applies a set of rules to a set of data

representing a problem to determine a solution to the problem by logical

manipulation and analysis of the set of data; and analyzing the process-based

specification to examine possible implementations of the process-based

specification in different configurations, whereby analyzing includes identifying at

least one equivalent alternative process-based specification and characterizing

differences between the process-based specification and the at least one

alternative process-based specification, wherein differences include number of

processes, deterministic behavior, and competition for resources as recite in all

the independent claims 1, and 26-28, and also pointed out in applicant's

Remarks, pages 12-13.

These claimed limitations are not present in the prior art of record and

would not have been obvious, thus all pending claims 1, 2, 4-9, and 11-28 are

allowed.

Any comments considered necessary by applicant must be submitted no

later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled

"Comments on Statement of Reasons for Allowance."

Conclusion

10.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Anna Deng whose telephone number is 571-

272-5989. The examiner can normally be reached on Mondays to Fridays 9:30 -
6:00.

If attempts to reach the examiner by telephone are unsuccessful, the
examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax
phone number for the organization where this application or proceeding is
assigned is 571-273-8300.

Information regarding the status of an application may be obtained from
the Patent Application Information Retrieval (PAIR) system. Status information
for published applications may be obtained from either Private PAIR or Public
PAIR. Status information for unpublished applications is available through
Private PAIR only. For more information about the PAIR system, see http://pair-
direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-
free).

/Anna Deng/

Examiner, Art Unit 2191

4/10/2009

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191